Michigan Department of Natural Resources
Fisheries Division

Response to "Status of Michigan's Steelhead: Serious Issues Impacting the Future of A World Class Fishery, Winter 2006

This document provides a summary response by the MDNR to a report produced by Matt Supinski regarding management of steelhead in Michigan. Mr. Supinski's thoughts are provided, followed by the Department's response in bold, italicized print.

Overview

Michigan's steelhead dynasty spans more than 130 years since the Pacific transplant made its home here in 1876. A hallowed mystique and tradition is in danger of being lost due to ecosystem changes in the Great Lakes and its rivers, lack of viable and pro-active management policies by the state DNR and other conservation groups and the tremendous increases in angling pressure which has created a great demand for the steelhead while the supply and resource continues to dwindle. However, other states (I.E. Ohio, Pennsylvania, New York etc.) continue to re-evaluate their steelhead fishery – in most cases, superceding those of Michigan's effort.

While this is a catchy introduction, there is absolutely no evidence that steelhead populations in the State's waters are in any danger of being lost, nor is there any evidence that steelhead populations are dwindling. Like other States, MDNR continues to evaluate steelhead populations and monitor the fishery to determine if management adjustments are necessary. Unlike other States that lack the river habitat required for steelhead and thus can only rely on stocking steelhead raised in hatcheries, MDNR continues to maintain its focus on enhancing opportunities for natural reproduction where ever and when ever possible. At times, we do consult with other State management agencies and they in turn seek consultation with us regarding steelhead management.

Critical Issues

1 Michigan has no viable comprehensive steelhead program in place to manage both wild and hatchery maintained fisheries.

Michigan's current management direction for steelhead is provided by several documents including a Broodstock Management Plan for the State and Fish Community Objectives for each Great Lake. Each individual water body that is stocked, including both Great Lakes and inland systems, has a fisheries prescription that describes the need for stocking. In addition, protection of the broodstock facility on the Little Manistee River is rigorously maintained to ensure the continued existence of this wild broodstock that provides eggs for future stocking throughout Michigan. It is true that a comprehensive management plan solely for steelhead does not exist. The Division is,

however, beginning to work on comprehensive, statewide management plans for salmonids as a community group in each Great Lake. Managing for single species is an outdated approach to fisheries science. Today, understanding the complexity of aquatic communities and the interactions between species and their food sources is necessary to maintain healthy ecosystems, which lead to diverse fishing opportunities.

In the recent past, identification by anglers of wild fish was easy since the MDNR clipped the right pectoral fin of all steelhead stocked into the State's waters. Although the MDNR never instituted regulations related to clipped versus unclipped steelhead because of the various problems associated with such a regulation, it is well known throughout the angling community that unclipped fish are most likely wild fish. This gives each angler the ability to choose whether they will release unclipped, or potentially wild, steelhead and only harvest clipped steelhead. Unless steelhead populations are in danger of decline due to overharvest or other reasons, for which there is no evidence today, the ability for anglers to make their own choice regarding harvest of steelhead without additional and biologically unnecessary regulations makes a good deal of sense.

2 No extensive steelhead research has taken place in over eleven years – other than David Swank's Doctoral Thesis – culminating with the Seelbach et. al. studies of the late 80's and early 90's. We are losing our best biologists to other states (i.e. Dave Swank to California)

This statement is simply not accurate. There have been many steelhead research projects and investigations conducted in the past 11 years. This work has been conducted either internally by MDNR staff or in conjunction with Universities through the Partnership for Ecosystem Research and Management (PERM), including the funding of several graduate students by the MDNR. Although the MDNR has had involvement with many excellent graduate students over the years, we simply can not hire them all. When we are capable of hiring new biologists, some previous students may not choose to interview for the job available, or are already working in an area they prefer. Whatever the reasons, the MDNR continues to hire highly qualified and professional biologists when the budget allows filling of positions.

In regards to current research on steelhead, the following work was either completed and/or published since 1994:

- ***Evaluation of brown trout and steelhead competitive interactions in Hunt Creek, Michigan. Andy Nuhfer,Hunt Creek Fisheries Research Station, MDNR. Study began in 1995, final report in 2009.***

- ***Assessment of steelhead and brown trout populations in eastern Lake Michigan. Jory Jonas, Charlevoix Fisheries Research Station (2003).***

- ***Performance, survival and production of steelhead strains in tributaries of Lake Michigan and Lake Huron. Jory Jonas, Charlevoix Fisheries Research Station,. Final report Fall 2006.***

- ***Comparisons of historical and contemporary patterns of genetic structure and diversity of steelhead in Lake Michigan. M. Bartron and K. Scribner. 2004. Envir. Biol. Fishes. 69:395-407(Michigan State University).***

- ***Methodological bias in estimates of strain composition and straying rates of hatchery-produced steelhead in Lake Michigan Tributaries. M. Bartron, D. Swank, K. Scribner, and E. Rutherford. 2004. N. Amer. J. Fish. Management. 24:1288-1299 (Michigan State University and University of Michigan).***

- ***Effects of hatchery practices on levels of gene diversity. M. Bartron and K. Scribner. Conservation Genetics. In review. (Michigan State University).***

- ***Temporal and microgeographic genetic structure in Lake Michigan Steelhead populations. M. Bartron, P. DeHaan, and K. Scribner. Trans. Amer. Fish. Soc. In review. (Michigan State University).***

- ***Genetic assessment of wild and hatchery contributions to steelhead recruitment and to harvests in open water Lake Michigan Fisheries: effects of historical and contemporary management. Final Report. USFWS.***

- ***Relationship between surface water temperature and steelhead distribution in Lake Michigan. T. Hook, E. Rutherford, and S. Brines. 2004. N. Amer. Journal Fish Management. 24:211-221. (University of Michigan)***

- ***Simulating effects of hydro-dam alterations on thermal and wild steelhead recruitment in a stable flow Lake Michigan tributary. B. Horne, E. Rutherford, and K. Wehrly. 2004. River Res. Applic. 20: 185-203. (University of Michigan)***

- ***A model of the movement behavior of steelhead in two Lake Michigan tributaries. D. Workman, D. Hayes, T. Coon. Michigan State University.***

- ***Spawning migration and habitat selection by steelhead and longnose suckers in the Pere Marquette and St. Joseph River, Michigan. D. Workman. Michigan State University.***

- ***Production of juvenile steelhead in two central Lake Michigan tributaries. A. Woldt and E. Rutherford. MDNR Fish. Res. Report. (University of Michigan)***

- ***Population dynamics of juvenile steelhead and coho salmon Michigan's Lake Superior tributaries, 1982-1997. J. Peck. MDNR Fish. Res. Report.***

- ***Performance of steelhead smolts stocked in southern Michigan warmwater rivers. P. Seelbach, J. Dexter, and N. Ledet. MDNR Fish. Res. Report.***

- ***Rehabilitation of a Lake Superior steelhead population by stocking yearling smolts. J. Peck. MDNR Fish. Res. Report.***

- ***Evaluation of alternate methods for estimating numbers of outmigrating steelhead smolts. T. Newcomb and T. Coon. 2001. North American Journal of Fisheries Management* 21:548-560. *(Michigan State University)***

- ***Environmental variability and survival of steelhead parr in a thermally diverse watershed. T. Newcomb and T. Coon. 1997. MDNR Fish. Res. Report. (Michigan***

State University)

- ***Assessment of management alternatives for altering the thermal regime of the Betsie River, Michigan. T. Newcomb. 1997. MDNR Fish. Res. Report. (Michigan State University)***

- ***Estimates of fish passage on the ST. Joseph River in 1993 using time-lapse video recording. J. Dexter and N. Ledet. MDNR Fish. Tech. Report.***

- ***Evaluation of natural reproduction, stocking rates and fishing regulations for steelhead, Chinook salmon and coho salmon in Lake Michigan. Rutherford, E.S. 1997. Final project report F-35-R-22, study 650 to Federal Aid for Sport Fisheries Restoration, 29 pp.***

- ***Abundance, production and harvest of salmonids in the Manistee, Muskegon and Au Sable Rivers. Rutherford, E.S. 1996-1999. Progress reports to Michigan Habitat Improvement Fund.***

- ***Production of juvenile steelhead in two central Lake Michigan tributaries. Woldt, A.P. and Rutherford E.S. 2002. Michigan Dept. Natural Resources, Fisheries Research Report 2062. Ann Arbor, MI. STATUS: Masters thesis that needs minor revision, will submit to Journal of GL Research by September 2006.***

- ***An individual-based modeling analysis of the effect of river restoration efforts on Steelhead Populations in the Manistee River, Michigan. Tyler, J.A., and E.S. Rutherford. Revised and re-submitted. Transactions of the American Fisheries Society.***

- ***Spatial variation in life history traits of wild Great Lakes steelhead populations. Swank, D.R., and Rutherford, E.S. Submitted. Canadian Journal of Fisheries and Aquatic Sciences.***

- ***Temporal variation in life histories of wild Great Lakes steelhead populations. Swank, D.R., and Rutherford, E.S. Submitted. Canadian Journal of Fisheries and Aquatic Sciences.***

- ***Production of juvenile steelhead in two central Lake Michigan tributaries. Woldt, A.P. and Rutherford E.S. 2002. Michigan Dept. Natural Resources, Fisheries Research Report 2062. Ann Arbor, MI. STATUS: Masters thesis that needs minor revision, will submit to Journal of GL Research by September 2006.***

- ***Use of GIS-derived landscape-scale habitat features to explain spatial patterns of fish density in Michigan Rivers. Creque, S.M., E.S. Rutherford and T.G. Zorn. 2005. North American Journal of Fisheries Management 25:1411-1425.***

- ***Simulating effects of hydro-dam alteration on thermal regime and wild steelhead recruitment in the Manistee River, Michigan. Horne, B.D., Rutherford, E.S., and Wehrly, K.W. 2004. River Research and Applications 20:185-203.***

- ***Relationships between surface water temperature and steelhead distributions in Lake Michigan. Hook, T., Rutherford, E.S., Brines, S.J., Schwab, D., and McCormick, M.J. 2004. North American Journal of Fisheries Management 24:211-221.***

- ***Landscape-scale measures of steelhead (Oncorhyncus mykiss) bioenergetic growth rate potential in Lake Michigan and comparison with angler catch rates. Hook, T.O., Rutherford, E.S., Brines, S.J., Geddes, C.A., Mason, D.M., Schwab, D.J., and Fleischer, G.W. 2004. Journal of Great Lakes Research 30(4):545-556.***

- ***Use of landscape-scale models to estimate steelhead recruitment from Lake Michigan tributaries.Rutherford, E.S., Marshall, E.R., Creque, S.M., and Swank, D.R. In prep. Ivan, L.N., and Rutherford, E.S. In Prep. Ecological Impacts of Adfluvial Fish Spawning Migrations (includes steelhead) on a Lake Michigan tributary.***

- ***Modeling flow-dependent habitat suitability for steelhead in the Muskegon River, Michigan. Tyler, J.A., Wiley, M.J., Rutherford, E.S., Ivan, L.N., and Riseng, C.M. In prep..***

- ***Individual-based simulations of steelhead population response to flow variability in Great Lakes tributaries. Ecological Applications. Rutherford, E.S. , and Tyler, J.A.***

- ***Identification of natal habitats for juvenile steelhead using trace element and stable isotope analysis of steelhead otoliths and scales. Rutherford, E.S., Thorrold, S.R., and Christensen, J. In prep. STATUS: Manuscript Needs minor revision, will be submitted by Fall 2006.***

- ***A life-history based model of fisheries management options for Steelhead in Lake Michigan. Swank, D.R., and Rutherford, E.S. In prep.***

- ***Stock-recruitment relationship of steelhead in the Little Manistee River, MI. Rutherford, E.S., Swank, D.R., and Su, Z-M. In prep.***

- ***Evaluation of flow-related changes in hydropower operations on production and potential recruitment of steelhead in the Au Sable, Manistee and Muskegon Rivers. Rutherford, E.S. In prep Journal of Great Lakes Research.***

3 A serious set-back will occur in 2006. The right pectoral fin clipping program, to identify wild vs. hatchery raised fish will be discontinued. This will impact much needed future studies and research.

While it is true that mass fin-clipping of all steelhead has occurred in the past, steelhead were released without a clip in 2006. This will again be the case in 2007. Discontinuation of clipping all steelhead stocked into the State's waters was a necessary move in light of the need for addressing budget reductions. Fisheries Division's budget is and has been facing financial difficulty due to decreasing license sales and the fact that no license fee increase has occurred since 1996. Because of these fiscal problems, Fisheries Division

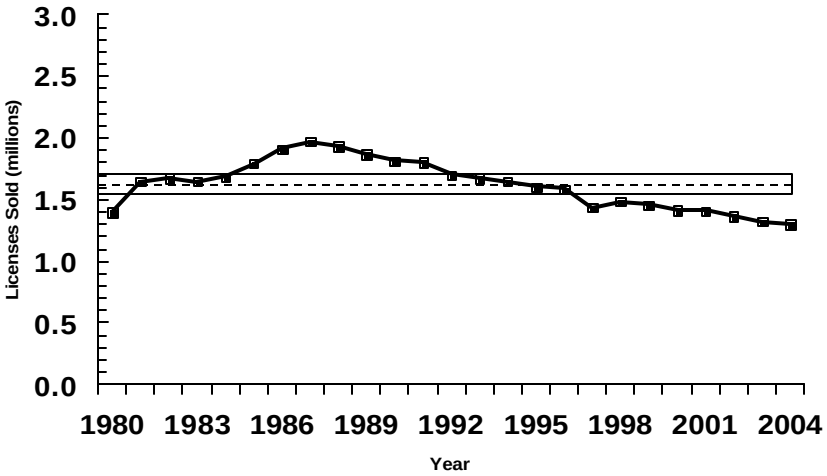
had to cut its budget by $4.1 million through 2007. In hopes that some relief is forthcoming soon, program level reductions were applied to projects that would result in only short term losses to the Division's management capabilities.

The initial intent of clipping all hatchery-reared steelhead was to pursue a selective fishery, with perhaps differing regulations on clipped versus unclipped fish. However, this was never brought to fruition largely due to lack of angler support. Additionally, clipping of all steelhead stocked by other States and Ontario is necessary to fully effect the benefits of setting regulations based on clipped versus unclipped steelhead. To date, we have been unable to convince these other management jurisdictions to clip all steelhead they stock.

There are no future studies that will be impacted by the decision to stop marking all steelhead for two years. When research is undertaken in the future, the State will clip the number of steelhead required for the study to be successful. Additionally, steelhead can be identified as hatchery or wild very effectively through scale analyses. Therefore, researchers will still be able to evaluate hatchery versus wild steelhead through the inspection of scales, even though anglers will not know immediately whether the steelhead they caught was wild or stocked.

4 The DNR's budget is in a state of disarray due to a severe decrease in dollars spent on licenses. Comment from a DNR spokesman was "this is a direct result of people spending more time with their families and not as much time fishing."

The MDNR is facing declining revenues as a result of decreased license sales, but budgetary shortfalls are also largely a result of increasing costs due to inflation and rapidly increasing energy costs. The last significant increase to the Game and Fish Fund from license sales occurred in the late 1980s, while the last license fee increase that occurred in 1996 was premised on maintaining current programs underway at the time. There was no attempt to generate new revenue for expanding programs in the 1996 fee increase package.



Total number of fishing licenses sold in Michigan from 1980 to 2004. The dashed line represents the average number of license sales (± 2*standard error).

5 Overall statewide steelhead returns to rivers and creel census numbers have been dropping for the past three years – except for anomalies like the Grand River on the 6th Street Dam in Grand Rapids.

This statement is incorrect. The following table presents steelhead numbers counted at the St. Joseph River (Berrien Springs Ladder, spring and fall), Pere Marquette River (PM electrical barrier, March – June), and Little Manistee River (egg-take weir fall and spring combined).

River	2001	2002	2003	2004	2005
St. Joe	18,880	7,648	18,007	20,365	14,448
PM	4,805	5,589	7,119	8,432	7,157
L. Manistee	7,348	8,552	3,329	3,975	4,462

In general, catch rates estimated from creel surveys represent anglers' preference as well as abundance of fish species. For the past several years, sport fishing for Chinook salmon on the Great Lakes has been excellent. Thus effort targeted at harvesting steelhead from the Great Lakes has declined and, therefore, so has the overall catch of steelhead. Yet catch rates for steelhead have been relatively stable, suggesting that changes in species targeted by anglers rather than declining abundance of steelhead is the primary factor influencing observations generated by the creel survey program. In waters tributary to the Great Lakes, the practice of catch-and-release fishing continues to build momentum which can result in lower estimates of harvest are generated by the creel survey program. Yet, the practice of catch-and-release fishing is also highly variable from stream to stream. Since no significant changes in stocking have occurred, the variability observed between streams may again be linked to angler behavior as much as to the contribution of wild fish to the fishery. Again, however, catch rates for steelhead in tributaries have been relatively stable

We know that streams with marginal habitat for trout can produce high numbers of juvenile steelhead when environmental conditions remain suitable in the watershed for the two year period during which each new year-class resides in the stream. Thus, the steelhead population benefits from these extra contributions of wild fish, as eventually does the sport fishery. In years when water levels are low and summer temperatures are warm, however, these same streams become unsuitable for young steelhead, resulting in fewer smolts produced. In many places, the ongoing drought of the past several years has significantly impaired the habitat conditions required to produce juvenile steelhead or smolts. Therefore, we expect to see some variability in steelhead abundance today and for the next few years as a result of the negative effects of the persistent drought on natural reproduction of steelhead.

6 Angling pressure from boaters, shore anglers, guides have increased substantially making angling tougher. The current demand by sportsman outnumbers supply.

Increasing fishing pressure from anglers, especially if sustained, is indicative of good fishing or good angling experiences. Michigan license sales do not support that angling pressure has been increasing across the State. However, local fishing opportunities may draw increased effort.

7 The state's steelhead stocking policy needs to be re-evaluated to coincide with current management and maintenance needs. Some rivers are receiving excessive numbers and others that can handle a greater fishery are receiving insufficient plants. Michigan has 71 upper peninsula steelhead rivers and 44 lower peninsula rivers.

The stocking of steelhead in any given river is governed by appropriate fishery management techniques, including reviews of historical stocking numbers, evaluations of stocked fish, and limitations in hatchery rearing capacity, and whenever possible by anglers' desires to create fisheries where natural reproduction cannot support a fishery. There have been limited opportunities over the last few decades to expand fisheries. The actual number of waters stocked is less relevant than our ability to meet lakewide Fish Community Objectives and our ability to provide the best tributary fisheries to the most people given the available resources. We do agree, however, that periodic reviews of policies and programs are a necessity. As stated earlier, this review will be accomplished in conjunction with our development of comprehensive, statewide management plans for salmonids as a community group in each Great Lake.

8 400,000 Little Manistee strain steelhead are <u>given</u> away to Ohio yearly by Michigan. The steelhead rivers in Ohio and Lake Erie's "Steelhead Alley" are booming – so is their tourism economy, fishing guide business and license revenues. It is my understanding that Ohio gives Michigan catfish in return. I find it very hard to believe that catfish will create increases in tourism dollars or boost license sales.

Fisheries agencies work collaboratively to assist each other in providing stocking needs that cannot be met by their own agency. Michigan provides approximately 250,000 steelhead <u>eggs</u> to Ohio annually in return for up to 100,000 fall fingerling channel catfish eggs and 300,000 steelhead <u>eggs</u> to Indiana in exchange for up to 30,000 fall fingerling catfish. Unlike in Michigan, there are very few rivers that would even support natural reproduction of steelhead in Ohio and Indiana, so they must rely heavily on stocking. Therefore, these two states do not have the ability to collect eggs from, much less rear, winter strain steelhead.

Michigan also provides 40,000 yearling winter steelhead to Indiana for stocking into the St. Joe River, in return for 35,000 Skamania strain yearlings for stocking into the Manistee River. Although Michigan does not rear Skamania or channel catfish, we are obligated to manage the State's fisheries for a variety of different constituents, including those who like to fish for catfish.

As pointed out earlier, Michigan has many streams conducive to steelhead survival and natural reproduction, most of which have good steelhead populations. Given the limited capacity and significant cost to rear steelhead, the MDNR must carefully weigh both management and biological issues when determining where and how many steelhead to stock in any given watershed. In Ohio, however, the availability of suitable waters for stocking steelhead is extremely limited, allowing that agency to stock relatively small rivers at very high rates. Yet this in turn has created the very conundrum argued earlier by Mr. Supinski as a negative aspect in fishing for steelhead in Michigan – substantial increases in angling pressure are making angling tougher: the current demand will outstrip the supply. Is this type of angling experience truly one we wish to see in

Michigan?

9 Predation on steelhead smolts in large rivers with estuary lakes (i.e. Muskegon Lake, White, Pentwater, Manistee etc.) by increasing populations of walleye and bass is becoming very significant.

In the mid to late 1980s, Michigan began producing larger yearling steelhead with a target size of 7 inches. This change has increased survival of stocked steelhead dramatically and ongoing monitoring has shown that wild recruitment, while variable, has been relatively steady for the past 20 years. Improved survival of stocked steelhead, along with the RP clip used on all steelhead stocked in previous years into the State's waters that allowed for easy identification by anglers, has led many anglers to believe that survival of wild steelhead has declined. This is, however, not true and is documented in:

Bartron, M. L., and Scribner, K. T. 2004. Temporal comparisons of genetic diversity in Lake Michigan steelhead, Oncorhynchus mykiss, populations: effects of hatchery supplementation. Environ. Biol. Fishes 69:395-407.

10 Alewife numbers are in a downward spiral trend – recovery looks bleak given its new food chain web restructuring in the Great Lakes. Steelhead smolts emigrate from the rivers during the onshore spawning runs of alewife. If these pelagic fish continue to demise, increased predation on smolts will continue.

Abundance of alewives in Lake Michigan has held steady for the past two years at roughly 15 kilotons (age 1+ and older). Survival of the 2005 year class of alewife appears to be very good so far. There is no evidence of any significant predation on steelhead smolts in the open waters of the Great Lakes, even in Lake Huron where alewives have all but disappeared.

11 As baitfish populations continue to be in a state of flux and the future looks bleak due to exotic predator invasions, steelhead might become the apex predator, since their ability to adapt to all sorts of food forms which comprise their diet.

Such a scenario is unlikely, and would clearly depend on what factors limit the abundance of steelhead in the Great Lakes. It is most probable that available spawning habitat is the single most important factor limiting steelhead distribution and abundance in the Great Lakes. Steelhead would not be immune, however, to a collapse of the prey fish community. Certainly their growth rate would decline, which in turn could lead to reduced reproductive potential in the future on top of the habitat limitations already in place. We are uncertain as to what Mr. Supinski intends by the phrase "exotic predator invasion". If he is referring to salmon as exotic predators, it should be noted that steelhead and rainbow trout are also non-native species in the Great Lakes basin.

In all likelihood, a collapse of the current prey fish community would probably benefit native lake trout the most. Lake trout are highly adaptable in their diets, as witnessed by their continued success in Lake Huron despite the absence of alewives and smelt.

12 In Seelbach/Rand/Wedge et. Al. 1993 study "Modeling Steelhead Population Energetics Lake Michigan and Ontario," they cite the following:

1. "Fishery managers throughout the Great Lakes basin have become increasingly concerned with the potential predator-prey imbalance that could result from overstocking of hatchery fish. The hypothesis that salmonid prey demand may exceed prey fish supply."
2. "Because of their limited dietary reliance on alewife *Alosa pseudoharengus* and rainbow smelt *Osmerus mordax* and relatively low stocking density compared with other salmonines, steelhead consumed only 4% of available alewife production and 2% of total smelt production in 1987 in Lake Michigan."
3. "Alewives composed a greater proportion of steelhead diets in Lake Ontario than in Lake Michigan, and rates of alewife consumption ranged from 0.02 to 0.13 kt month.
4. "Chinook salmon were responsible for 63% of total predation, steelhead and coho salmon for 14% each, and lake trout for 9%. In terms of impact on alewife stocks, annual steelhead consumption (1.1 kt of large alewives and 2.2 kt of small alewives) was similar to that of coho salmon and lake trout but considerably lower than consumption by Chinook salmon."
5. "This low value resulted from the larger invertebrate component in the diets of adult steelhead and slower growth rates compared with coho and Chinook salmon."

Overall, the salmon has become a wild self propagating mainstay in Michigan, and given that the ecosystem and forage base does not collapse, (i.e. BKD plague of late 80's) the salmon is yet to demonstrate its adaptability to alternative food forms like the steelhead rainbow trout has.

It is true that steelhead appear to have a more variable diet than do coho or Chinook salmon in terms of prey items selected and eaten, but overall growth rates of steelhead are strongly dependent on availability of alewife in the proper size range (see Rand et al. 1993). Coho and Chinook salmon, however, can and have adapted to alternative prey sources in the Great Lakes. Examples of this ability to adapt are seen in Lake Superior where herring provides a primary food source for salmon, and in Lake Huron where smelt have been the dominant prey when they have been available to salmon.

Rand, P. S., Stewart, D. J., Seelbach, P. W., Jones, M. L., and Wedge, L. R. 1993. Modeling steelhead population energetics in Lakes Michigan and Ontario. Trans. Am. Fish. Soc. 122:977-1001.

13 The Consumers Power Hydro Relicensing parameters that were stipulated in the FERC settlement for the Manistee, Muskegon and AuSable Rivers have not been resolved and are causing thermal pollution problems on these rivers. It is adversely impacting wild steelhead production. Steelhead fry are hatching in monumental numbers, particularly on the Muskegon and Manistee, much to do with the stable flows which enhance reproductive success and egg hatching – but smolting success is impacted negatively.

Fisheries Division continues to work with Consumers Energy on all issues related to the re-licensing of the hydropower projects on the Manistee, Muskegon, and Au Sable rivers within the bounds of the settlement agreement. It is hoped that a reasonable resolution of the water quality issues will be forthcoming once the water quality studies mandated in the agreement have been completed, leading to new management options in the future. We recognize that progress has been slow but MDNR personnel have been

working diligently on the issue. We are cautiously hopeful that a resolution is on the horizon.

14 It is staggering that other species such as walleye, bass and pike are protected during spawning runs and yet we are allowed to kill three wild spawning steelhead – there is no reason to this madness. In an age where hatchery dollars are sparse and production is limited as hatchery space is maxed-out – it would stand to reason to encourage the less costly alternatives to creating more steelhead – that is through natural reproduction and lowering harvest/kill limits to perhaps "1 a day" versus "3 a day" as it now stands. New York state has gone to this bold move, as have other states and the Province of Ontario and are seeing a measured increase in the number of repeat spawners and substantial returns to the rivers versus bleak prior years. New York's Salmon River is a recent case in point.

Fisheries Division is always willing to consider adjustments to angling regulations. The last major change in regulations for salmon and trout occurred in 1997, and included significant input from constituents statewide. At that time, there was strong support for the regulations that are in place today, which included additional protections for steelhead. It is true that steelhead are available for harvest in some rivers during the spawning season, but a majority of the streams most important for natural reproduction of steelhead are closed to harvest. Without evidence of overharvest leading to declines in steelhead abundance, there appears to be no rationale for reducing the bag limit. In addition, bag limits are rarely effective in curtailing fishing mortality for a variety of reasons. Thus, other steps would be required if there were truly a biological need for increased protection of steelhead stocks. Such measures would involve a lengthy review process prior to approval.

15 Certain angling practices such as baiting/chumming and "un-natural" acts of angling need to be addressed – in addition to allowing bait fisheries with treble hooks which greatly increases mortality of adults and smolts.

Fisheries managers work diligently to provide different types of angling opportunities for all anglers. We have established special regulations on select waters, such as the Pere Marquette River, to provide gear restrictions and a specialized experience desired by a relatively small proportion of the angling community. Additionally, the following is one of the many rules published in the fishing guide: "On all streams (including tributaries to the Great Lakes) from August 1 through May 31, it shall be unlawful to use multi-pointed hooks exceeding 3/8 inch between point and shank and/or single-pointed hooks exceeding ½ inch between point and shank. Also during this period it shall be unlawful to use lures exceeding one ounce."

16 The 10 inch limit on some steelhead rivers is not adequate enough to protect steelhead smolts. In a study done by Seelbach/Dexter/Ledet in 1994, entitled "Performance of Steelhead Smolts Stocked in Southern Michigan Rivers" they cite: "Survival and returns appeared to be substantially higher for larger smolts. This hypothesis should be directly tested by monitoring the returns of matched groups of different-sized stocked smolts."

The MDNR's decision to overhaul its steelhead program by changing, among other things, its management strategy from stocking fingerlings to stocking larger yearlings

was based on earlier studies similar to the one cited above. It must be noted, however, that "larger" is in reference to our decision to stock yearlings at a size when they are ready to smolt. Generally, steelhead smolt when they reach approximately 7 inches in length. Thus, the 10-inch size limit is appropriate for protecting steelhead smolts. Growing and stocking steelhead larger than 7 inches leads to other problems, especially if the fish have already gone though the smolting phase while still in the hatchery. Other reports evaluating size at stocking for steelhead stocked in rivers in the western U.S. are listed below.

Miller, W. H., Coley, T. C., Burge, H. L., and Kisanuki, T. T. 1990. Analysis of salmon and steelhead supplementation: Emphasis on unpublished reports and present programs. Project, 88-100 Part 1.

Steward, C. R., and Bjornn, T. C. 1990. Supplementation of salmon and steelhead stocks with hatchery fish: A synthesis of published literature. Technical Report, 90-1 Part 2.

17 It appears that the DNR is stocking larger and larger smolts each year – in 2005, we measured several silver smolts approaching the 9-10 inch size range, which were caught accidentally while fishing for adult steelhead in May. The regulations for the Thornapple Landing down to Lake Michigan that existed for over three years 2001-2004, and were abolished by the DNR in 2005, were a welcome nursery buffer zone for steelhead smolts and created a trophy trout fishery - which accounts for all the very large brown trout that were caught in 2005. The DNR's data was poor and limited at best for their decision to abolish the 15 inch rules that still exist on other comparable fisheries like the Big Manistee. There are no differing in catch rates, size, thermal water temperatures on that river compared to the Muskegon – if anything the Muskegon has better water quality in the summer due to deeper impoundments. In the heat wave summer of 2005, the trout fishery near Croton Dam was spectacular due to greater flows from the reservoirs and cooler, more oxygenated water. In addition, some states such as Indiana, Wisconsin etc. actually have closures on rivers when hatchery steelhead are stocked.

As stated previously, we have no information that indicates sport harvest is a limiting factor in the production of steelhead. In fact, our information continues to show a significant improvement in survival of steelhead stocked into the State's waters over the last 15 years. The 10-inch size limit is appropriate for protecting steelhead smolts.

18 Summer steelhead programs in Michigan were aborted in 1991 on most rivers except for the Big Manistee and St. Joseph. Many other rivers had good angling success which was not documented by the DNR. Since we are decreasing salmon stocking significantly, it would be in good interest to re-evaluate this program and look at rivers where their re-introduction would apply.

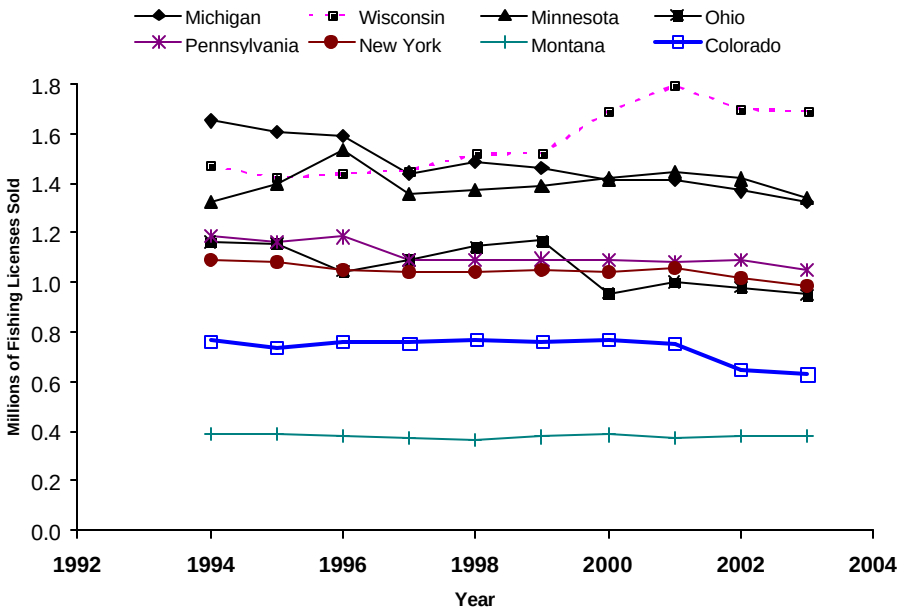
In the early 1980s, angler consensus on this issue was to keep the Michigan (winter strain) and eliminate Skamania stockings on most rivers where stocking occurred. Because Michigan is limited in its rearing capacity, those waters that received some number of Skamania did not receive an equal number of winter strain fish. As a result and given the studies that documented the lack of success of the Skamania program, anglers called for a re-instatement of the stocking of winter strain fish. Michigan does not intend to expand Skamania stocking efforts at this time, although we are undertaking

a review of our hatchery capabilities related to rearing of Michigan (winter strain) steelhead.

19 State of Michigan needs to significantly supplement DNR funding which is going through a financial crisis currently (2006) The DNR claims they are losing license sales and for good reason. Other states such as Pennsylvania, New York, Ohio, Montana, Colorado etc. are growing in license sales because of very progressive and immediate pro-active management plans to protect and enhance their fisheries for out-of-state tourism dollars. Case in point, when New York saw a problem with steelhead returns on its hallowed Salmon River off of Lake Ontario, they went to a mandatory one fish limit. In a matter of one year, they saw tremendous increases in returns of fish to the river and more angling success. Bottom Line – a steelhead is too valuable a sporting resource to be heavily harvested – catch-and-release works well for this very recyclable resource and multi-spawing fish.

The MDNR is open to the suggestion that all of the people of the State contribute to funding the protection and management of its natural resources. The Natural Resources Commission has appointed a task group to review the potential for a license fee increase, and other possibilities to derive new funding for the MDNR's management activities. We look forward to the outcome of the recommendations of this group.

Other states, in fact, have not increased their license sales. The figure below shows that, of the many states mentioned above, the only state that has experienced an increase in license sales recently is Wisconsin (data from USFWS Federal Aid License Sales Certification website). License sales in most of the other states mentioned have either held steady or slightly declined in recent years.



Comparison of fishing license sales between Michigan and other States

While we understand the desire to link an observed change in a fish stock to the implementation of a new regulation based on one year of data, such a relationship is

highly suspect. Actual increases in abundance resulting from a change in regulations would take at least 3 to 5 years of data to provide for appropriate statistical significance, and to tease out other factors that could also have impacted the results. For example, we have pointed out the variability in drought conditions from year to year and their effects on the abundance of steelhead stocks. Mr. Supinski has pointed out the potential constraints related to forage availability in the Great Lakes, which can create significant fluctuation in abundance of steelhead stocks between years. In addition, it is well known that although many steelhead do not die after spawning, it is also very unlikely that the same fish will return to the river to reproduce in successive years.

In regards to Mr. Supinkski's bottom line, we understand his passion for steelhead. All anglers maintain personal values for select fisheries, however, and the job of Fisheries Division is to balance all of those, sometimes conflicting, desires. As mentioned previously, Fisheries Division is always open to additional communication on these issues.

20 Studies show that upwards of 75% of steelheaders (all angling modes: bait, hardware and fly) are quality anglers interested in the fish's sporting quality rather than killing their limits. Thus, an unbiased angler survey needs to be conducted, just as New York did before they went to a 1 kill/harvest limit, to ascertain the qualitative sporting needs. A great majority of New York's anglers come from out of state eastern seaboard locations (Massachusetts, Connecticut, Pennsylvania, New Jersey, and Maryland). The surveys were staggering in their conclusion that the majority of anglers wanted "more fish to catch" and less harvesting of fish – they were in search of a qualitative angling experience – not just meat fishing!

Fisheries Division conducted a similar survey in the mid 1990s when coldwater regulations were reviewed and changed. Our report prominently discusses that anglers value the catching more than the harvesting for many of the State's trout fisheries. As such, bag and size limits were changed for some waters and species, and those that were not had the consensus of Fisheries Division's external Coldwater Regulations Steering Committee. It is interesting to note that if significantly fewer anglers are harvesting fish because of changing values that further embrace the concept of catch-and-release fishing, then reductions in fish populations due to overharvest by sport anglers certainly can not be an issue. Additionally, if the number of anglers practicing catch-and-release fishing for steelhead is perchance "upwards of 75%" in Michigan, than further restrictions in the bag limit will certainly have no effect on the abundance of steelhead stocks in the future. We concur that an unbiased angler survey needs to be conducted, and we look forward to implementing such a survey when budgets allow.

21 Michigan currently manages its steelhead fishery for "maximum kill/harvest" levels and is not proactive in keeping in stride with the demands and needs of the progressive, out-of-state and out of town tourist destination angler that is willing to put money into the economy – which puts it into the DNR Trust Fund to manage our fisheries appropriately.

We strongly disagree with this statement. Fisheries Division has not and will not manage the State's aquatic resources in an attempt to achieve maximum sustainable yield for any fish species. We have evaluated sport angler harvest through our general creel survey program for both the Great Lakes and inland waters for many years. In all cases, the data have demonstrated that bag limits are rarely achieved by sport anglers for any fish species. Maintaining a bag limit of three steelhead per day provides a reasonable

opportunity for anglers to take home fish. As stated earlier, if momentum for catch-and-release fishing for steelhead continues to build, particularly for river fisheries, then the need for stricter harvest regulations becomes even less important through time.

Bottom Line Assumptions

When it comes down to it from a fisheries management perspective, steelhead rainbow trout must ultimately be assessed a status as to "how to best manage this fishery for the highest sporting and angling quality." It goes without saying , from an angling perspective, reproductive success, numbers of steelhead river fishermen, number of river boats and licenses purchased each year by anglers, that these fish are best managed for the "river-fishery" – not the "big lake" - Charter Captains primarily target salmon and steelhead are often a "mixed bag or accidental catch."

We cannot consider one fishery without the other as they are connected. However, Fisheries Division's primary management objective for steelhead has always been to provide for a river fishery first and an open lake fishery second. We emphasize again that catch rates of sport anglers fishing for steelhead in Michigan are some of the best in the country.

Thus is makes sense to manage the salmon for the open water fishery and steelhead for the river/shore fishery – a fish that has the proven ability to strike the fly, bait or lure with frequent and multiple encounters which adds to the river fisherman's increased appeal and higher quality of sport. In addition, steelhead feed while on up-river spawning migrations and are multiple spawners where catch-and-release further enhances their prominence in the fishery – (Note: it is not suggested that catch-and-release be a mandated management option – controlled and limited harvest is best suited to all anglers.)

We believe that current regulations address the need to control and limit sport angler harvest of steelhead, and provide appropriate protection for this species. If anglers desire to change their behavior and embrace the catch-and-release concept, they are free to do so under the current regulatory scheme in place.

Overall, the demand for the steelhead fishery by local anglers and tourists has far exceeded the state's rivers natural and hatchery generated capacity to produce an adequate supply for this demand. However, when compared with other Great Lakes states, Michigan's rivers are the most plentiful and diverse ecosystems that can and did at one time yield the best and most prosperous steelhead fisheries in the entire Great Lakes, if not North American system.

With current Great Lakes food-chain ecosystems evolving, both for good and negative impacts, the steelhead rainbow trout, due to its varied diet in predation/prey relationships, has demonstrated in it s 130 year history its great adaptability to food forms and will find its niche in the food chain regardless of what the exotic invader food chain change will eventually yield.

On the other hand, the Pacific salmon have demonstrated great dominance and reproductive success in Michigan's rivers and is a viable big lake fishery to the angler. However, when faced with a changing ecosystem and shortages of baitfish forage base, it has not preformed and proven to be adaptable (i.e. BKD salmon kills of the late 80's). Its future is uncertain how it will

fare to the next baitfish food chain crisis which we are somewhat experiencing now.

As for the steelhead rainbow trout, it has proven itself over and over again both from a hearty survival mode and of a fish that demands the highest respect and noble status from the Great Lakes angler.

In 2006, it is about time that steelhead are given the respect from a fisheries management aspect, which has not been the case for a long time, as other Great Lakes states and the Province of Ontario have been and are consistently seeking better ways to modify their programs in keeping strides with proactive, modern day angler needs and what is best for the steelhead fishery of the future.

We have a great appreciation for protecting steelhead stocks and maintaining sport fisheries that rely on this amazing species. We intend to review current management practices in the near future on a variety of fronts. With additional information obtained from recent research efforts, publications, and surveys, we will be better able to develop and address future management issues and opportunities. However, fish community goals today require that all jurisdictions manage for a diversity of fish species and the control of invasive species like alewife. We have learned over the past 40 years that alewife populations are best controlled by Chinook salmon. Steelhead can not produce the same control capability because of their diverse diets. In fact, it would be necessary to have 4 times as many steelhead in Lake Michigan as there are Chinook salmon currently to achieve similar objectives for controlling alewife. It is highly unlikely that such an abundance of steelhead could be created, much less sustained for very long.

<u>In Conclusion</u>

The following comments by biologist Rich O'Neil, in his <u>1997 Muskegon River Watershed Assessment Treatise</u>, is quoted as follows:

"The total economic potential for expanding potamodromous and trout fisheries (on the Muskegon River) is over 8 million dollars annually. The Muskegon River has the potential to supply 52% of total Chinook salmon, and 70% of total steelhead the Michigan Department of Natural Resources stocks into Lake Michigan each year. The total 1990 Michigan stocking for these species was 3.64 million Chinook salmon and 520,000 steelhead. The Muskegon River has the potential for producing 1.91 million Chinook salmon and 362,000 steelhead smolts annually." (Note: similar numbers exist for the Manistee River system.)

"Chinook salmon and steelhead natural reproduction should be evaluated and stocking could be increased."

"The Muskegon River is large and may support increased stocking of some species. However, the issue of increased stocking of various species is complex and thorough evaluations will be necessary before this would occur. Chinook salmon and Michigan steelhead would be likely candidates for increases. Increasing natural reproduction would be a better alternative."

"Adult steelhead spawning runs are 50% natural fish." (That was as of 1997)

Nearly nine years have passed since he made these comments and nothing has happened – food for thought!

As has been discussed above, significant progress is being made towards understanding, protecting, and managing steelhead stocks in Michigan for today's anglers and for future generations of anglers to enjoy.